But even "Bot. Gaz. 1890. 132" is not adequate to the most ready finding of the reference. In binding such journals many libraries indicate on the back only the number of the volume. If the year only were cited two volumes or more might have to be taken down, whereas if the citation "Bot. Gaz. XVI (1890). 132" the paper could be found with the greatest ease, since no data are lacking.

In our opinion the following items should be given in a full citation: (1) the title of the article; (2) the name of the publication, if abbreviated at all abbreviated so as to be readily identified ("Jour. Bot." would not be so); (3) series number, if any; (4) volume number; (5) year; (6) page. Designating the part, heft, lieferung or fascicle is generally useless.

For the sake of greater uniformity of typography the GAZETTE has tentatively adopted that shown in the following samples. It would be a convenience if authors would follow this plan, or would agree upon some other in this time of botanical agreements.

VAN TIEGHEM et DOULIOT: Les racines des phanérogames. Ann. Sci. Nat. Bot. VII. VIII. (1891). 256.

VAN TIEGHEM: Traité de Bot. II. 398. Paris. 1891.

CURRENT LITERATURE.

Sachs' Writings on Vegetable Physiology.

In the domain of vegetable physiology there is one name that stands high above all others. It is that of Dr. Julius von Sachs, the eminent professor of botany in the University of Würzburg. He is not the father of the science, that honor belonging to Stephen Hales, an Englishman of a century ago, but he is its deliverer, having rescued it from an inconsequential condition, in which it received slight consideration, and by his rare insight and acute experimentation, his breadth of view and solidity of judgment, and especially by his ability in coördination, having placed it among the foremost of the several divisions of the science of botany. At the time he began to write more physiological work was done by chemists and physicists than by botanists, and the subject was not taught as a separate study; now laboratories and chairs are often exclusively devoted to it, and it has risen to equal dignity with the other departments of botany.

The writings of Dr. Sachs, which are the basis of this advancement, and to which every investigator must refer who desires to examine the original publication of facts discovered during the last thirty-five

years, are scattered through many journals and proceedings of societies, as is the case with the writings of most authors, and it was an act of special consideration for the learned author to devote some of the time of his declining years to the collection and editing of the most important of his writings. The result we now have in a heavy volume[1] of over twelve hundred pages. The publisher has issued it in two parts (erroneously called volumes on the title page), with continuous paging and single index. Forty-three memoirs are included, the principle of selection being to take those which deal most fully with observation; for while theories and explanations are subject to continued variation, true facts remain immutable. The original publication of the articles dated from 1859 to 1892. In the collected form the chronological arrangement is not closely adhered to, but a certain sequence of topics is maintained under the following headings: physical and chemical phenomena of vegetation, growth, formation of cells and irritability. Unimportant parts of the original articles have been omitted, but no additions have been made, except when an explanation seemed to be needed to show the connection with the present state of knowledge, and such additions are always distinctly indicated.

These memoirs supplement and substantiate the author's text books. It is impossible to more fully outline here the interesting contents of this large volume, and it must suffice to say, what is but simple fact, that it will prove indispensable to the student of vegetable physiology, not only on account of the invaluable memoirs it contains, but because of the convenient form in which they are presented.

Minor Notices.

THE SECOND VOLUME of Massee's British Fungus-Flora[2] is now issued, and is an exact counterpart of the first volume, noticed in the January issue of this journal (p. 31). A few more species are included than in the first volume, making nearly 1,600 species in both. The present volume does not yet carry the work through the Basidiomycetes. As the work is to be completed in three volumes, we are at a loss to see how the author can justify his selection of a title. If the third and concluding volume is like the preceding ones, there will yet remain 2,500 species of the "British fungus-flora" unprovided for, if by that term is meant the species of British fungi. That is, in a work

[1] SACHS, JULIUS.—Gesammelte Abhandlungen über Pflanzen-Physiologie. pp. x. 1,243. pl. 10, figs. in text 126. royal 8vo. Leipzig, Wilhelm Engelmann. 1892-93. Marks 29.

[2] MASSEE, GEORGE.—British fungus-flora: a classified text-book of mycology. 2 vols. Vol. II. pp. 432. Illustrated. 8vo. London, George Bell & Sons. 1892.

which purports to cover the whole field of the British fungous flora, and to be a "classified text-book of mycology," only half of the known species of fungi found in the region are included. However, the author may have some way of avoiding the dilemma.

A VALUABLE monograph upon the American species of Saprolegniaceæ has recently been published by James E. Humphrey.[1] It appears in the Transactions of the American Philosophical Society, but has also been distributed separately. The group was greatly in need of study, and it is gratifying to have the labor so handsomely and so substantially done. The author found little material upon which to begin his work, and with the exception of some aid from a half dozen collectors, chiefly from the material gathered over ten years ago by Dr. William Trelease, he was dependent upon his own collections made during the two years given to the study. Considerable space is devoted to the morphology of the group. Under the head of classification twenty-one species are described, belonging to seven genera. These include six new species, while the study of European forms not yet found in America has led to the separation of a new genus, and the change of name of two species. The seven lithographic plates are particularly fine, and will be a great help in future study. This work will undoubtedly give a decided impetus to the study of these more than usually interesting aquatic fungi. An extensive bibliography completes the paper.

A BIBLIOGRAPHY of the tannoids covering 27 pages and including over 450 entries has been prepared by J. Christian Bay, and distributed as a reprint issued in advance of the fifth annual report of the Missouri Botanic Garden. The author published a bibliography of inulin recently, and proposes to follow with other subjects. Such works are of the greatest value to investigators, and their preparation should receive the utmost encouragement from every botanist.

THE ARTICLE UPON BOTANY in pharmacy by John S. Wright in a recent number of *Science* has been reprinted with additional illustrations and distributed by Eli Lilly & Co. in the form of a neat pamphlet.

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[1] HUMPHREY, J. E.—The Saprolegniaceæ of the United States, with notes on other species. From Trans. Amer. Phil. Soc., XVII. pp. 63–148. pl. XIV–XX. 4to.